

### ***APPENDIX III***

#### ***ESTIMATED AIRPORT CAPITAL IMPROVEMENT COSTS AND POTENTIAL FUNDING SOURCES TO IMPLEMENT 2004 RTP REGIONAL AVIATION PLAN***

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## ***SUMMARY***

The current Southern California airport system will need substantial upgrading to handle the 170 MAP in 2030 that is forecast in SCAG's adopted Regional Aviation Plan in its 2004 Regional Transportation Plan (RTP). The total existing airport capacity at the SCAG region commercial airports, assuming no future investments in terminal or runway improvements, is approximately 115.5 million air passengers (MAP). This represents a shortfall of almost 55 MAP for 2030 when compared to the 170 MAP forecast for the Preferred Plan. To meet this forecast significant improvements will need to be made at almost every airport in the region.

Based on current case studies and airport master plans, a total of about \$5.93 billion<sup>1</sup> will be needed to construct the necessary facilities to implement SCAG's 2030 Preferred Regional Aviation Plan, as shown in Table 1. These include terminal, runway/taxiway, parking, rental car and major ground access facilities. The estimation methodology and cost assumptions for each airport are described below.

## ***METHODOLOGY***

Facility improvement costs were estimated through a number of sources. When possible, the current airport master plan was used, or drafts of the unfinished master plan. In cases where no master plan was available, or the necessary improvements were not included, total costs are estimated in 2002 dollars. The numbers were derived

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<sup>1</sup> The \$4.85 billion does not include any proposed improvements to Los Angeles International Airport (LAX) under the adopted Master Plan Alternative D (and LAX Specific Plan). The improvements at LAX (estimated at \$10 billion) do not enhance capacity and thus are unrelated to necessary expenditures needed to meet demand. The cost of the LAX Master Plan is included in this report for informational purposes only.

**Table 1**  
**Estimated Airport Capital Improvement Costs**  
**To Implement Adopted Regional Aviation Plan**

<b>Airport</b>	<b>2002 MAP</b>	<b>2002 Capacity</b>	<b>Forecast 2030 MAP</b>	<b>Estimated Investment</b>
<i>Bob Hope</i>	4.6	9.4	10.7	\$20 million
<i>John Wayne</i>	7.9	8.4	10.8	\$512 million
<i>Los Angeles Int'l</i>	56.2	78	78	\$10 billion
<i>Long Beach</i>	1.5	3.8	3.8	\$7 million
<i>March Inland Port</i>	0	0	8	\$800 million
<i>Ontario Int'l</i>	6.5	10	30	\$1.5 billion
<i>Palm Springs</i>	1.1	1.9	3.2	\$122 million
<i>Palmdale</i>	0	2	12.8	\$1.61 billion
<i>San Bernardino</i>	0	2	8.7	\$1.08 billion
<i>South CA Logistics</i>	0	0	4	\$577 million
<b>TOTAL</b>	<b>77.8</b>	<b>115.5</b>	<b>170.0</b>	<b>\$6.24 billion<sup>2</sup></b>

from comparing case studies of other U.S. airports that are planning, constructing or finishing capital improvement projects. Denver International Airport and Austin International Airport were used as benchmarks for estimating facility costs for comprehensive airport development projects. Boise International Airport, San Francisco International, Houston InterContinental, Las Vegas and Detroit International Airport all recently completed new terminals of various sizes and functions. These facilities were used as benchmarks to estimate facility costs for proposed international terminal improvements at Ontario International and Palmdale airports.

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<sup>2</sup> The \$4.85 billion does not include any proposed improvements to Los Angeles International Airport (LAX) under the adopted Master Plan Alternative D (and LAX Specific Plan) since they do not increase capacity.

The size of needed terminal facilities was estimated by examining comparable airports (in terms of passenger enplanements) and averaging how many gates are needed. International airports tend to have more space requirements for U.S. Customs, hold rooms and longer aircraft turn times; this was taken into account. The larger the project, the lower the incremental cost per gate. In other words, an 8 MAP facility is not quite double the cost of a 4 MAP facility.

The cost of airfield improvements and rental car facilities were mostly derived from the benchmark case studies. The most useful case studies were Boise International, Palm Springs International and Austin International, since they provided cost breakdowns for individual facility elements. The ground access costs such as for needed freeway interchanges and arterial improvements were largely based on recent Caltrans projects, and/or derived from the airport ground access element in the 2004 RTP. One major cost savings in the SCAG region is land acquisition, since the airports that need new facilities already have almost all the land necessary to accommodate them. It should be noted that SCAG's proposed Maglev system was not included in any of the facility cost estimates.

These airport facility costs are preliminary estimates. Security regulation changes, environmental policy, construction costs, demolition and time delays, and other factors could significantly impact these estimates. It should also be noted that only major ground access improvements are included in the costs. More detailed information and ground access improvement needs and costs can be found in the 2004 RTP Technical Appendices, page D-6-86 (<http://www.scag.ca.gov/rtp2004/2004draft/techappendix>).

## ***AIRPORT CAPITAL IMPROVEMENT COST ESTIMATES***

### ***(1) Bob Hope: \$20 million***

The only capital improvement needed at Bob Hope Airport to achieve the adopted 2030 Regional Aviation Plan forecast of 10.8 MAP would be the demolition of three structures on the south end of the airfield to allow for 3 to 5 remote aircraft parking positions. Some minimal taxiway and ramp work done would also be needed. This figure was derived from examining details of demolition and moderate ramp work at the Boise Airport and Palm Springs.

***(2) John Wayne: \$512 million***

The airport is currently recently finalized designing a new terminal that will be able to accommodate the 2030 Regional Aviation Plan forecast of 10.8 MAP. It is hoped that this new terminal will be fully operational in the next five years. The new terminal will have a total of 20 gates. The \$512 million estimate was generated by John Wayne Airport, which covers construction of new terminal facilities as well as refurbishment of existing facilities.

***(3) Los Angeles International: \$10 billion***

The airport's current Preferred Master Plan Alternative is Alternative D, which focuses on safety and security. The \$10 billion is derived from judgment, local newspaper articles and studies. The money would fund terminal demolition and reconstruction, significant runway and taxiway improvements, a ground transportation center, a rental car facility and numerous other ground access improvements. Alternative D does not increase the capacity of LAX beyond the 2030 forecast of 78 MAP, so its \$10 billion estimated cost was not added to the airport capital improvement cost estimate total.

***(4) Long Beach: \$7 million***

The City of Long Beach is beginning to plan and design a supplemental terminal structure that can accommodate the legally allowed 41 commercial and 25 commuter flights per day. Additional vehicle parking will also be constructed. In 2030 Long Beach is forecast to have 3.8 MAP. The \$7 million figure is a preliminary estimate made by the City of Long Beach, which could be significantly higher at the conclusion of the project.

***(5) March Inland Port: \$800 million***

This funding would pay for an 18 to 22 gate terminal facility that could accommodate the Regional Aviation Plan forecast of 8 MAP. The terminal would be similar in size to the newly constructed Austin International Airport. About \$700 million would pay for ground access (including a new freeway interchange), parking facilities, rental car facilities, a new terminal structure, and air carrier ramp improvements. Another \$90 million would be needed for runway/taxiway work, and \$10 million for new air cargo facilities (in addition to private investments).

***(6) Ontario International: \$1.5 billion***

The airport master plan is currently being developed by Los Angeles World Airports. LAWA, the City of Ontario and the County of San Bernardino agree on the conceptual capacity of 30 MAP. The current terminal facilities can handle about 10 MAP. There will need to be an additional terminal constructed and significant improvements made to vehicle parking, ground access and ramp space. The facility would need a minimum of 75 gates to accommodate 30 MAP in 2030 (50 gates more than current). At 30 MAP Ontario would be similar in size to San Francisco International. A new 50 gate terminal would be similar to the newly completed 64 gate MacNamara Terminal at Detroit Metro Airport. Preliminary estimates from the ongoing Ontario Airport master planning process, provided to SCAG by Los Angeles World Airports (LAWA), indicate that needed improvements will cost from \$1.3 billion to \$1.7 billion. An estimated cost of \$1.5 billion to expand Ontario International Airport to accommodate 30 MAP was therefore used.

***(7) Palm Springs: \$122 million***

The Palm Springs Airport Master Plan forecasts 2.7 MAP by 2020, about 0.5 MAP less than is forecast in the SCAG Preferred Aviation Plan in 2030. The \$122 million would pay for a second passenger terminal consisting of 11 air carrier gates, check in facilities, baggage claim area and additional vehicle parking. These figures come from the recently completed airport master plan.

***(8) Palmdale: \$1.61 billion***

In order to handle the Regional Aviation Plan forecast of 12.8 MAP in 2030 the airport will need to undergo significant capital improvements. A new terminal that has between 28-35 gates, with office space for U.S. Customs, USDA and the Transportation Security Administration (TSA) will be required, costing about \$1.0 billion. The airport will have a strong international focus that will require more room for aircraft parking, maintenance, catering and passenger processing. Issues relating to the current operating agreement with Air Force Plant 42 that limit operations and facility improvements will need to be addressed. Significant ground access improvements, internal circulation improvements and long-term parking will be necessary for a Palmdale Airport with a strong international portfolio, costing another \$490 million. Lastly, \$120 million would be required for freeway interchange work. The 2030 forecast of 12.8 MAP is similar to current passenger activity at Oakland International Airport.

***(9) San Bernardino International: \$1.08 billion***

San Bernardino is forecast to serve 8.7 MAP in 2030. To accommodate this growth a new passenger terminal will be needed, or significant modifications made to the existing terminal structure. The current terminal space would only be able to handle a maximum of 15% of the forecast growth. The airport will need a total of between 20-25 gates. Significant demolition of facilities and reconstruction may be needed. However, the available ramp space is very adequate for this type of facility. About \$850 million would be for a new terminal with internal circulation and parking facilities (\$610 million for the terminal), \$140 million for a second runway and taxiways, \$11 million for new air cargo facilities, \$46 million for arterial improvements and \$32 million for a new interchange. San Bernardino International at 8.7 MAP in 2030 would be comparable to current passenger activity at Sacramento International Airport.

***(10) Southern California Logistics: \$577 million***

This airport will need a new passenger terminal facility, passenger parking, ground access improvements and ramp improvements. About \$450 million would be needed to fund a terminal with 14-18 gates and parking, about \$100 million for internal circulation, \$8.7 million for arterial improvements, and \$18 million for a new freeway interchange. With a 2030 forecast of 4 MAP the airport would be similar to current passenger activity at Reno/Tahoe International. There is adequate space at Southern California Logistics for a new terminal structure. The cost estimates for this airport were derived mostly from case studies of Boise International and Palm Springs International.

***FUNDING SOURCES FOR AIRPORT CAPITAL IMPROVEMENT PROJECTS***

The approximate \$5.93 billion in total capital improvements needed to implement the 2030 Regional Aviation Plan (excluding the LAX Master Plan) is a relatively modest sum compared to the cost of implementing, for example, the \$16 billion master plan for Chicago O'Hare (most recent estimate). Still, there will be challenges in securing this needed funding, particularly for new and emerging airports. There are many demands being placed on available airport funding, since commercial airports are capital-intensive facilities and many are having to make expensive modifications to accommodate new security and inspection systems and, in the case of large hub airports, the new

generation of very-large aircraft. This is in the face of reduced federal FAA Airport Improvement Program (AIP) grant funds that have been adversely impacted by recent events. These events include the sharp economic downturn that occurred in the aviation industry after September 11, 2001. Also, the increasing dominance of the low-cost discount carriers in the industry, with their low air fares, have substantially reduced overall ticket tax returns to the AIP fund pool.

The alternative funding sources that are available to U.S. commercial airports are as follows, in order of importance:

***Revenue and general obligation bonds:*** In the 1950's and early 60's, general obligation bonds were more widely used than revenue bonds for airport development. General obligation bonds are backed by the taxing authority of the issuer. Since the 1960's tax-exempt airport revenue bonds have been the major financing mechanism for capital improvements at commercial airports. These financial instruments pledge the airport's revenue streams to repay bond holders. In the 1999-2001 period airport bonds comprised about 59% of total funding for U.S. commercial airports.<sup>3</sup>

***Airport Improvement Program Grants:*** The FAA administers these grants for airport planning and capital improvement projects. From 1958 to 1970, these grants were appropriated from the general fund. After 1970 revenues were drawn from the Airport and Airway Trust Fund, derived from passenger ticket taxes and other excise taxes including cargo and fuel taxes. AIP grants comprised about 21% of total U.S. commercial airport funding in 1999-2001. FAA relies on airports to identify individual project for funding consideration, as long as they fall within eligible projects listed in the AIP Handbook. Generally, most types of airfield improvements, such as runways, lighting, navigational aids, and land acquisition, are eligible, while hangars and interest expense on airport debt are not. AIP-eligible projects for airport areas serving travelers and the general public (i.e., "landside development") include entrance roadways, pedestrian walkways and movers, and space within terminal buildings that does not

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<sup>3</sup> All percentages from "Airport Finance: Past Funding Levels May Not Be Sufficient to Cover Airports' Planned Capital Development," U.S. General Accounting Office, Testimony by Gerald L. Dillingham to the Senate Committee on Commerce, Science and Transportation, February 25, 2003



produce revenue and is used by the public, such as waiting areas. AIP-ineligible landside projects include revenue-producing terminal areas, such as ticket counters and concessions, parking facilities, and the interest on construction bonds. Because the estimated cost of eligible projects greatly exceeds the available grant funding, FAA uses a priority system based on airport and project type to ration the available funds. A database of AIP-eligible projects from approved airport master plans, system plans and discussions with airport officials, extending 10 years into the future, is maintained by the FAA in its National Plan of Integrated Airport Systems (NPIAS). Projects intended to expand airport capacity are the largest single category of AIP-eligible need in the NPIAS database. These are followed by projects intended to bring airports up to FAA-recommended design standards, projects intended to rectify aging airport infrastructure, projects to upgrade facilities to accommodate future needs such as larger aircraft, and projects intended to address safety, security and environmental concerns.

***Passenger facility charges:*** In 1990 Congress removed the statutory prohibition on airports charging a per passenger enplanement fee. Funds from passenger facility charges (PFCs) were intended to finance airport capital improvements, with emphasis on capacity, security and noise and environmental mitigation projects. In granting airports the authority to impose PFCs (now up to \$4.50/passenger) the legislation adopted an eligibility standard for PFC-funded projects similar (but not identical) to AIP-eligibility. There are three exceptions: airports can use PFC funds for interest on airport bonds, for terminal gates and related areas, and for noise mitigation projects that are not part of an FAA-approved noise program. There is also more flexibility in constructing off-airport ground access projects using PFC funds. PFCs comprised about 13% of total U.S. commercial airport funding in 1999-2001. Large- and medium-hub airports that use PFC funding are required to return 50% of their AIP entitlement funds. Of the forfeited entitlement funds, 75% are placed in the AIP Small Airport Fund (benefiting non-commercial service airports and non-hub commercial airports) and 25% in the AIP discretionary fund, (half of the 25% targeted to small hub airports). The goal of this diversion was to provide a way for small airports to benefit from the PFCs levied by the larger airports.

***State and local contributions:*** These funds include state and local grants, loans, and

matching funds for AIP grants, which comprised about 4% of total U.S. commercial airport funding in 1999-2001.

**Airport revenue:** Airport revenues include receipts from airline rates and charges such as landing fees, and revenue from airport concessions, leases and parking fees. Airport revenues are used to pay O&M expenses, to finance “pay as you go” capital projects, and to service bonds. Assuming net operating revenue in excess of a minimum coverage ratio of 125% of the debt service (principal and interest payments) for commercial airports, airport revenue comprised about 4% of total U.S. commercial airport funding in 1999-2001. At most commercial airports, the financial and operational relationship between an airport and the airlines it serves is defined in legally binding agreements that specify how the risks and responsibilities of airport operations are to be shared between the two parties, called “airport use agreements.” The contracts generally specify the methods for calculating the rates airlines must pay for use of airport facilities and services, as well as identify the airlines’ rights and privileges, such as the right to approve or disapprove any major proposed capital development project the airlines are required to finance.

Several airports in the SCAG Region have also been beneficiaries of funds from the FAA’s Military Airport Program (MAP), which is an AIP grant set aside. The MAP provides financial assistance to civilian sponsors who are converting, or have already converted, military airfields to civilian or joint military/civilian use. MAP grants may be used for projects not generally funded by the AIP, such as building or rehabilitating surface parking lots, fuel farms, hangars, utility systems, access roads, and cargo buildings. San Bernardino International (formerly Norton AFB) and Southern California Logistics (formerly George AFB) were past participants in the MAP. March Inland Port is a current participant, and is using MAP funds to develop a new fueling system, ramp and security fencing.

### ***ADEQUACY OF AVAILABLE FUNDING TO MEET AIRPORT DEVELOPMENT NEEDS***

There is a general consensus that maintaining the integrity of the national airport system requires continual upgrades and a steady and predictable flow of capital. The FAA has

estimated that planned capital development of \$9 billion annually is necessary to meet expanding demand in the national airport system (this includes only AIP-eligible projects). The Airport Council International (ACI) has estimated annual costs at about \$15 billion. Neither the FAA nor the ACI estimates include terminal modifications needed to accommodate new explosive detection systems required for baggage screening.<sup>4</sup>

In 2000, Congress passed and President Clinton signed the Wendell H. Ford Aviation Investment and Reform Act for the 21<sup>st</sup> Century (FAIR-21). This multi-year FAA reauthorization bill included authorizations of \$9.9 billion for the AIP for fiscal years 2001-2003, a significant increase over previous years. The bill also increased PFC ceilings to \$4.50 per enplaning passenger. Congress followed this by re-authorizing the AIP for 2004-2007 at \$14.2 billion for 4 years (or \$3.55 billion per year).

However, there is still a significant shortfall between available airport funding and improvement needs, particularly at small/emerging airports that are unable to derive significant revenues through PFCs. From 1999 through 2001, airport received an average of about \$12 billion a year for planned capital improvements. The primary source of this funding was bonds, which accounted for almost \$7 billion, followed by federal grants and passenger facility charges, which accounted for \$2.4 billion and \$1.6 billion, respectively. This is \$3 billion less than what the ACI estimated is needed annually. The amounts and types of funding also varied by airport type. Of the \$12 billion, large- and medium-hub airports received over \$9 billion, and smaller airports received over \$2 billion. With the continuation of these funding levels, smaller airports would not be able to fund about 27% of their planned development, compared to about 20% for large- and medium-hub airports.<sup>5</sup> This is mainly because small airports rely on AIP grants disproportionately more than larger airports, and have less flexibility and fewer options for funding their needed improvements. In 1996 the 71 large and medium hub airports in the national system, which accounted for almost 90% of all passenger traffic, derived only 10.6% of their total funding from AIP grants (and 18% from PFCs). This is compared to 50.5% from AIP grants for the 3,233 other airports in the national

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<sup>4</sup> "Infrastructure Report Card, 2005, Aviation," American Society of Civil Engineers, 2005

<sup>5</sup> "Airport Finance: Past Funding Levels May Not Be Sufficient to Cover Airports' Planned Capital Development," U.S. General Accounting Office, Testimony by Gerald L. Dillingham to the Senate Committee on Commerce, Science and Transportation, February 25, 2003

system (7.2% from PFCs).<sup>6</sup> It is likely that the difference in AIP fund reliance between the large-and medium-hub airports and the smaller airports in the national system is even greater today.

In a regional airport system like Southern California's, with established urban airports that are highly constrained, but with new/emerging airports in suburban areas that have available capacity to accommodate future demand, there are distinct challenges in securing adequate financing for needed improvements at these new airports. This is because the new airports have not yet attracted significant if any aviation activity to support PFCs or revenue bonds, so must rely disproportionately on AIP grants to fund their expansions. The grants in effect serve as "seed money" at these airports for attracting future service and private sector investment dollars. However, as noted previously, the amount of funding available through the AIP program is limited and has recently been reduced. Also, because about one-third of AIP grants are awarded to airports on the basis of the number of enplaned passengers, this further constricts the ability of small, growing airport to obtain essential funding for high-priority projects. Innovative financing mechanisms, discussed below, may be needed to secure funding for these new and emerging airports that are key to implementing SCAG's adopted Regional Aviation Plan.

### ***INNOVATIVE FINANCING MECHANISMS***

The FAA has introduced mechanisms to make better use of existing airport funding sources, the most successful of which has been letters of intent, a tool that has effectively leveraged private sources of funding. They represent a non-binding commitment from the FAA to provide multi-year funding to an airport beyond the current AIP authorization. The FAA has also examined, through demonstration programs, a number of innovative financing mechanisms to make more efficient use of AIP funding, including:

- (1) Permitting flexible local matching on some projects
- (2) Purchasing commercial bond insurance

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<sup>6</sup> "Airport Financing: Funding Sources for Airport Development," U.S. General Accounting Office, March 1998

- (3) Paying interest costs on debt
- (4) Paying principal and interest debt service on terminal development costs incurred before the enactment of AIR-21.

According to the FAA, the results of the demonstration program have been mixed. The most popular option for airports has been flexible matching, which has resulted in several creative loan arrangements.<sup>7</sup>

Some federal transportation, state aviation and airport bond rating and underwriting officials believe using AIP funding to capitalize state revolving loan funds would help smaller airports obtain additional financing. Currently, FAA cannot use AIP funds for this purpose because AIP construction grants can go only to designated airports and projects. However, state revolving loan funds have been successfully employed to finance other types of infrastructure projects, such as water and surface transportation projects. While loan funds can be structured in various ways, they use federal and state moneys to capitalize the funds from which loans are then made. Interest and principal payments are recycled to provide additional loans. Once established, a loan fund can be expanded through the issuance of bonds that use the fund's capital and loan portfolio as collateral. These revolving funds would not create any contingent liability for the U.S. government since they would be under state control.

Various privatization strategies have also been proposed for drawing new sources of capital to airports, from privatizing certain airport functions to full private ownership of airports. The main shortcoming of the latter is that fully privatized airports are not eligible for AIP grants or use of tax-exempt revenue bonds. They also would not be subject to the legal obligations attached to AIP grants, such as prohibitions on using airport revenue for non-aviation purposes.

A "hybrid" alternative of airport privatization that could be used to spur new airport development without these shortcomings would be an expansion of the public/private partnership concept. The local government would hold title to the land on both the airside and landside, and basic infrastructure improvements on the airside including

runways and taxiways would still be funded primarily through AIP grants. Private investment would be emphasized in developing revenue-generating landside facilities—a single private developer could be given the responsibility for the development and management of all terminal and ground transportation facilities. The developer would lease the land from the local government authority under a long-term agreement, hold title to the passenger and cargo terminal facilities, concessions and any other improvements it built on the land, and control development rights on the airport. The developer, or the contracted airport operator if the that activity is separately contracted, would operate and maintain the airside under a separate agreement, taking into account any special mandates that accompanied the use of tax-exempt bonds, state funds and or AIP grants.<sup>8</sup>

Through this strategy that expands public/private partnership concepts currently in use (such as at Bob Hope Airport, which is administered by a private contractor), financial risks for new airport development would be shared between the public and private sectors. The public trust would be maintained via the government authority ownership of the airport land, maintenance of AIP grant and other agreements and terms of the public-private development agreement to be negotiated prior to the airport's financing and construction. Most importantly, this strategy has the potential bring substantial new capital to a new and expanding airport that it otherwise could find difficult to obtain.

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<sup>7</sup> "Airport Financing: Smaller Airports Face Future Funding Shortfall," U.S. General Accounting Office, Testimony by Gerald L. Dillingham to the Committee on Transportation and Infrastructure, House of Representatives, February 22, 1999

<sup>8</sup> "Innovative Airport Financing: Private Investment in a Third Chicago Airport," Steve Steckler, Reason Foundation, Annual Privatization Report, April 2003.